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EXAMINER	
WASHINGTON, JAMARES	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/629,088	BRAUDAWAY ET AL.	
	Examiner	Art Unit	
	JAMARES WASHINGTON	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-7 and 19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3, 5-7 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Amendments and response received June 11, 2009 have been entered. Claims 1-3, 5-7 and 19 are pending in this application. Claim 1 has been amended. Amendments and response are addressed hereinbelow.

Claim Objections

In light of the amendment correcting a minor informality in the claim, examiner withdraws the previous claim objection.

Claim Rejections – 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Douglas Mennie et al (US 672442 B1) in view of Roger David Hersch et al (US 7491424 B2) and Christian Voellmer et al (US 6439395 B1).

Regarding claim 1, Mennie et al discloses a method of deterring document counterfeiting comprising:

providing at least one authentic hard-copy document (Fig. 21 "Learn Mode" step 2114), color scanning a plurality of candidate documents to form scanned documents (column 2 lines 66 through column 3 line 3) each having a two-dimensional array of image pixels for each candidate document (Fig. 22 numerals 2214 and 2216, "X" and "Y" dimensions);

searching each pixel array to identify said second color mark ("... scanning full color characteristics of a document, processing data corresponding to the characteristics scanned..." at column 3 lines 16- 19; Indicating a color characteristic determines the evaluation of subsequent documents. Searching "to identify said second color mark" is not given patentable weight as "to identify said second color mark" is merely intended use of the apparatus used to scan the documents).

Mennie et al fails to teach each of said authentic hard-copy document printed including a first set of colors within a first color gamut of a printing device and at least one mark printed using a second color that is within a second color gamut, where the second color gamut is out of gamut of said printing device, said second color being printed using a custom-color ink.

Hersch et al, in the same field of endeavor of document security using color to determine authenticity (Abstract), teaches a first set of colors within a first color gamut of a printing device and at least one mark printed using a second color that is within a second color gamut (Col. 2 lines 42-46 wherein several standard inks, forming a standard color gamut are combined with a metallic ink, which creates a second color gamut outside that of the typical "standard" color

gamut) where the second color gamut is out of gamut of said printing device (The second color gamut formed by introducing the metallic ink is outside that of the standard ink color gamut. If the second color gamut were in gamut, there would not be a need for the extra colorant. See Col. 33 lines 4-8 wherein it is taught that printing colors with metallic inks cannot be replicated with standard color photocopiers). Hersch teaches that said out of gamut color is a custom color ink (Metallic or fluorescent specialty inks are custom color inks as they are not reproducible by standard process colors cyan, magenta, yellow and black).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of discriminating authentic documents from counterfeit documents as disclosed by Mennie et al to utilize the teachings of Hersch et al where an authentic hard-copy document printed includes a first set of colors within a first color gamut of a printing device and at least one mark printed using a second color that is within a second color gamut, where the second color gamut is out of the gamut of said printing device, having at least three ink colors because, in respect to security documents, non-standard inks such as metallic are already used for protecting security documents and valuable articles such as banknotes, tickets, etc. (Col. 2 lines 13-16). The modification of Mennie et al to incorporate the teachings of Hersch et al would have constituted the mere arrangement of old elements with each performing the same function it had been known to perform, the combination yielding no more than one would expect from such an arrangement.

Regarding the claim limitation "wherein said out of gamut color produced by said custom color ink is selected from a differential gamut color volume lying outside a printable colors gamut volume of said printing device, but inside both an object color's gamut volume and a

gamut of physically realizable colors of a 3-dimensional color space", the claimed subject matter is met when a selected color lies outside the printer's color gamut but inside an object's color gamut since the entirety of an object colors gamut would always lie within the physically realizable colors of a 3-dimensional color space. The object color gamut will be read as the gamut created by adding the new custom ink to the existing printing gamut as disclosed by Hersch et al. Adding a new/additional colorant to a standard printing system creates a new gamut. Therefore, Hersch et al teaches wherein said out of gamut color produced by said custom color ink (Col. 2 lines 42-46 wherein several standard inks, forming a standard color gamut are combined with a metallic ink) is selected from a differential gamut color volume lying outside a printable colors gamut volume (The ink was previously shown to be outside a publicly available printer's gamut in that the metallic ink "cannot be replicated with standard color photocopiers", Col. 33 lines 4-8) but inside both an object color's gamut volume (The new ink introduced to the system to create the color which is not reproducible by publicly available hardware creates a new gamut when added to the existing gamut of a publicly available printer) and a gamut of physically realizable colors of a 3-dimensional color space (Both gamuts would have to be within the gamut of all realizable colors).

Mennie et al fails to disclose or suggest sorting said plurality of candidate documents into a first group of scanned documents which includes documents identified as having only the first set of colors within said first color gamut, and into a second group of scanned documents having said second color mark within said second color gamut, said scanned documents in said first group are characterized as counterfeit, and said scanned documents in said second group are characterized as authentic.

Voellmer et al, in the same field of endeavor of discriminating counterfeit documents from authentic documents ("To permit bank notes which the test device detects as being suspected forgeries or unidentifiable to be sorted out separately as early as possible" at column 2 line 10), teaches sorting a plurality of documents into a first group of scanned documents not having said at least one out-of-gamut color mark (Documents not having said at least one out-of-gamut color mark (as rejected above Mennie in view of Hersch et al) are documents found to be counterfeit or forged therefore "Reject pocket 10 disposed in the immediate vicinity of the input pocket is intended for unidentifiable or suspected counterfeit notes which must be subjected to a check by the operator" at column 3 lines 17-20) and into a second group of scanned documents having said at least one out-of-gamut color mark (Documents containing said at least one out-of-gamut color mark are documents found to be authentic therefore Fig. 1 numeral 12 (or 13-15 according to currency type) "output pocket") so that said scanned documents in said first group being characterized as counterfeit, and said scanned documents in said second group being characterized as authentic.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method as disclosed by Mennie et al in view of Hersch et al wherein counterfeit documents are discriminated from authentic documents by using an out-of-gamut color mark to involve the process of sorting the documents according to authenticity as taught by Voellmer et al to avoid confusion between the two if the authentic document is to be further examined or determined authentic from the first determination.

Regarding claim 2, Mennie et al discloses the method as recited [in] claim 1, wherein each of said pixels has at least three color pixel values (column 2 lines 4-11).

Regarding claim 5, Mennie et al discloses the method as recited claim 1, wherein the step of providing authentic hard-copy documents' includes providing a plurality of bank checks (Column 5 lines 51-59).

Regarding claim 7, Mennie et al discloses the method as recited [in] claim 1, further comprising employing an authentication test taken from a group of authentication tests consisting of:

gamut color size correspondence; gamut color location correspondence; magnetic number correspondence ("The scanhead(s) 70 may perform magnetic, optical and other types of sensing to generate signals that correspond to characteristic information received from a bill 44) at column 5 lines 62-65, Mennie and column 29 lines 33-47, Mennie);

checking account pattern-of-use exception;

unexpected presence of ultraviolet fluorescing (column 28 lines 23-32, Mennie);

unexpected presence of thermochromic responding;

unexpected presence of laser resonating inks;

unexpected absence of ultraviolet fluorescing;

unexpected absence of thermochromic responding;

unexpected absence of laser resonating inks; and

any combination of these authentication tests. (If one of the claim limitations is met, then the claim limitation as a whole is met).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mennie et al in view of Hersch et al and Voellmer et al as applied to claim 1 above, and further in view of John S. Ligas et al (US 5289547).

Regarding claim 3, Mennie et al discloses the method as recited [in] claim 1. Mennie et al fails to teach or suggest wherein the step of color scanning includes employing a colorimeter.

Ligas et al, in the same field of endeavor of document authentication ("The authenticating method of the present invention may be used to authenticate security documents and other articles of commerce" at column 2 lines 58-60), teaches employing a colorimeter ("The means for verification may be by a visual observation or by the use of an instrument such as a colorimeter" at column 10 line 39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of document authentication as disclosed by Mennie to employ a colorimeter as taught by Ligas because a colorimeter is a well-known instrument in the art of image processing for comparing or matching colors.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Douglas U. Mennie et al (US 6721442 B1) in view of Roger David Hersch et al (US 7491424 B2) and

Christian Voellmer et al (US 6439395 BI) as applied to claim 1 above, and further in view of Osama M. Alattar (US 2002/0126873 A 1).

Regarding claim 6, Mennie discloses the method as recited [in] claim 1, further comprising:

noting correct pixel locations of said at least one color in said authentic document (Fig. 21, numeral 2106. Determining the bill's orientation gives the location information of the indicia or "color" patch to be sensed as explained in column 43 lines 54-60);

determining particular pixel locations (Fig. 23a numeral 2305) of said at least one color (see rejection of claim 1 above. The object for determining authenticity is determined to be a color outside the gamut of a conventional printer); and

forming a third group of scanned documents not having said particular pixel locations corresponding to said correct pixel locations, and into a fourth group of scanned documents having said particular pixel locations corresponding to said correct pixel locations, so that said scanned documents in said third group being probably counterfeit, and said scanned documents in said fourth group being possibly authentic (see rejection of claim 1 pertaining to document sorting according to authenticity).

Mennie fails to disclose determining particular pixel locations in each of said second group of scanned documents.

Alattar, in the same field of endeavor, teaches determining an additional characteristic from the group of possibly authentic documents ("A detector 34…detects the component colors"

at paragraph [34]. "A signature is determined for a subject spot color based on the color components" at paragraph [35]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to conduct a second detection operation after detecting a first characteristic of authenticity as taught by Alattar where the component colors are first detected and a signature is determined according to the component colors with the method disclosed by Mennie et al in which documents are discriminated according to authenticity because the additional detection would provide heightened security for the detection of authentic documents.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Douglas Mennie et al (US 672442 B1) in view of Roger David Hersch et al (US 7491424 B2), Eric R. Lee et al (US 6786954 B1) and Christian Voellmer et al (US 6439395 B1).

Regarding claim 19, Mennie et al discloses the method as recited in claim 1.

Mennie et al fails to explicitly disclose further comprising employing an authentication test taken from a group of authentication tests consisting of:

checking account pattern-of-use exception;

unexpected presence of thermochromic responding;

unexpected presence of laser resonating inks;

unexpected absence of ultraviolet fluorescing;

unexpected absence of thermochromic responding;

unexpected absence of laser resonating inks; and

any combination of these authentication tests.

Lee, in the same field of endeavor of document security using color to determine authenticity ("The present invention also relates to an ink which can be used for labeling an object (for example, a document or other object) with identifying markings which can be rapidly verified as authentic and which are highly resistant to counterfeiting" at column 1 lines 15-19; Lee), teaches ultraviolet fluorescing, thermochromic responding inks, among other techniques are traditional government and corporate anti-counterfeiting technology techniques (Col. 1 lines 32-49).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the method of deterring document counterfeiting comprising color scanning a plurality of candidate documents to identify a second color mark outside a first color gamut of a printing device as disclosed by Mennie et al to employ an authentication test taken from a group of authentication tests consisting of checking account pattern-of-use exception, unexpected presence of thermochromic responding, unexpected presence of laser resonating inks, unexpected absence of ultraviolet fluorescing, unexpected absence of thermochromic responding; unexpected absence of laser resonating inks, and any combination of these authentication tests as taught by Lee because these are well known traditional government and corporate anti-counterfeiting technologies which make the replication of the original document impossible without access to highly expensive printing hardware, or the authorization to purchase restricted raw materials. The use of the well known techniques would have been a predictable modification because of the known advantages listed above. A person of ordinary

skill in the art would recognize that it would improve the method as disclosed by Mennie in the same way.

Response to Arguments

7. Applicant's arguments filed June 11, 2009 have been fully considered but they are not persuasive.

Applicant's remarks: While the Examiner appears to apply Mennie in view of Hersch and Voellmer in the rejection, page 5 of the office action refers to Lee et al. (U.S. Patent Number 6,786,954 Bt) as providing a general teaching at Col. 17 lines 62-64 of an out-of-gamut color produced by a custom color ink. Applicants respectfully query whether it is intended that Lee is to be cited by the Examiner as part of the present 35 U.S.C. 103(a) rejection, at 1east for purposes of filing an Appeal.

Examiner's response: In light of the minor informality, Examiner has withdrawn the finality of the previous action to clarify the rejection of claim 1 above.

Applicant's remarks: For security or authenticity purposes, Hersch teaches use of metallic ink combined with a "standard" color ink on a document. Hersch's standard color ink (cyan, magenta, blue, yellow, etc) is also a "transparent" ink (See Hersch at col. 6, lines 47-61). However, contrary to the Examiner's indication, Hersch's use of combined transparent (standard)

color ink and metallic ink does not render that standard color "out of gamut" of a commercially available printer. To this end, the Examiner is referred to Hersch at Col. 7, lines 50-60 which teaches that under non- specular light reflection, a printed CMY patch is not distinguishable from its corresponding printed CMY patch adapted for superposition on a metallic ink (silver ink, "s", rendering the ink patch "scmy"). That is, using a standard (low cost) printer device having a limited color gamut and implementing non-specular reflection as in the present invention, will not reveal the presence of a metallic ink nor any pattern printed therewith.

Thus, applicants' reading of Hersch is that only high cost printers implementing specular reflection will be able to discern embedded patterns such as produced by the metallic ink. That is, only at specular reflection angles will the metallic patterns be highly visible. Hersch at Fig. 1, and col. 6, lines 28-39. Thus, respectfully, the detection of patterns as produced by metallic ink in combination with the standard ink (a so-called custom colored ink) has nothing to do with the color gamut of the printer device, but rather the specular characteristic of the light used in the scanning process (Fig. 1 of Hersch). Thus, Mennie would not implement Hersch to determine counterfeited documents as Hersch's teaching of the combined metallic and standard ink would be reproducible by a low-cost (standard or commercially available) printer and any copy of a document printed with such ink would not be distinguishable (i.e., not out of gamut) using application of non-specular light. Under scanning conditions of use of specular light, only hidden "patterns" based on the metallic ink application will be viewed. Again detection of "patterns" for authenticity (as taught in Hersch) has nothing to do with a color gamut of a printer device.

Examiner's response: The Examiner's position is that the "combination" of the standard color ink with the metallic ink would be "out of gamut" of a commercially available printer, as stated in the disclosure of the prior art of record wherein it is taught that printing colors with metallic inks cannot be replicated with standard color photocopiers (Col. 33 lines 4-8). There is nothing within the claimed subject matter that specifies using a "low-cost" printer device having a limited color gamut to implement non-specular reflection to detect the "out-of-gamut" color. The claimed invention simply specifies that the second color must be out of gamut with respect to the "printing device". Hersch et al clearly reads on providing a "second color"/ink which is not reproducible (i.e., out-of-gamut) of the "standard" four-color printing device.

Examiner disagrees with Applicant's assertion that "the detection of patterns as produced by metallic ink in combination with the standard ink (a so-called custom colored ink) has nothing to do with the color gamut of the printer device". It is clear from the teachings of Hersch et al that if a printing device is "not able to replicate" the metallic ink which is being sought when scanning, then the detection of the metallic ink is the primary focus when attempting to detect a "color which is out-of-gamut" from a standard printing device. The fact that the invention is geared towards making the metallic ink indistinguishable to a user when printed with the other common inks is irrelevant to the actual gamut reproducible by the device. This notion simply effects how a user perceives the colors with the naked eye. The main concern in the inventive concept of the prior art is to utilize an ink which is not able to be replicated by common printer hardware, scanning for the ink and determining the authenticity of the document in accordance with the presence or absence of the ink. Furthermore, although the silver (metallic) ink is used to create "patterns", the silver metallic ink itself, is still outside the gamut of the standard printing

device as stated above because the silver metallic cannot be replicated using standard inks accompanying the printing device.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMARES WASHINGTON whose telephone number is (571) 270-1585. The examiner can normally be reached on Monday thru Friday: 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on (571) 272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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June 23, 2009